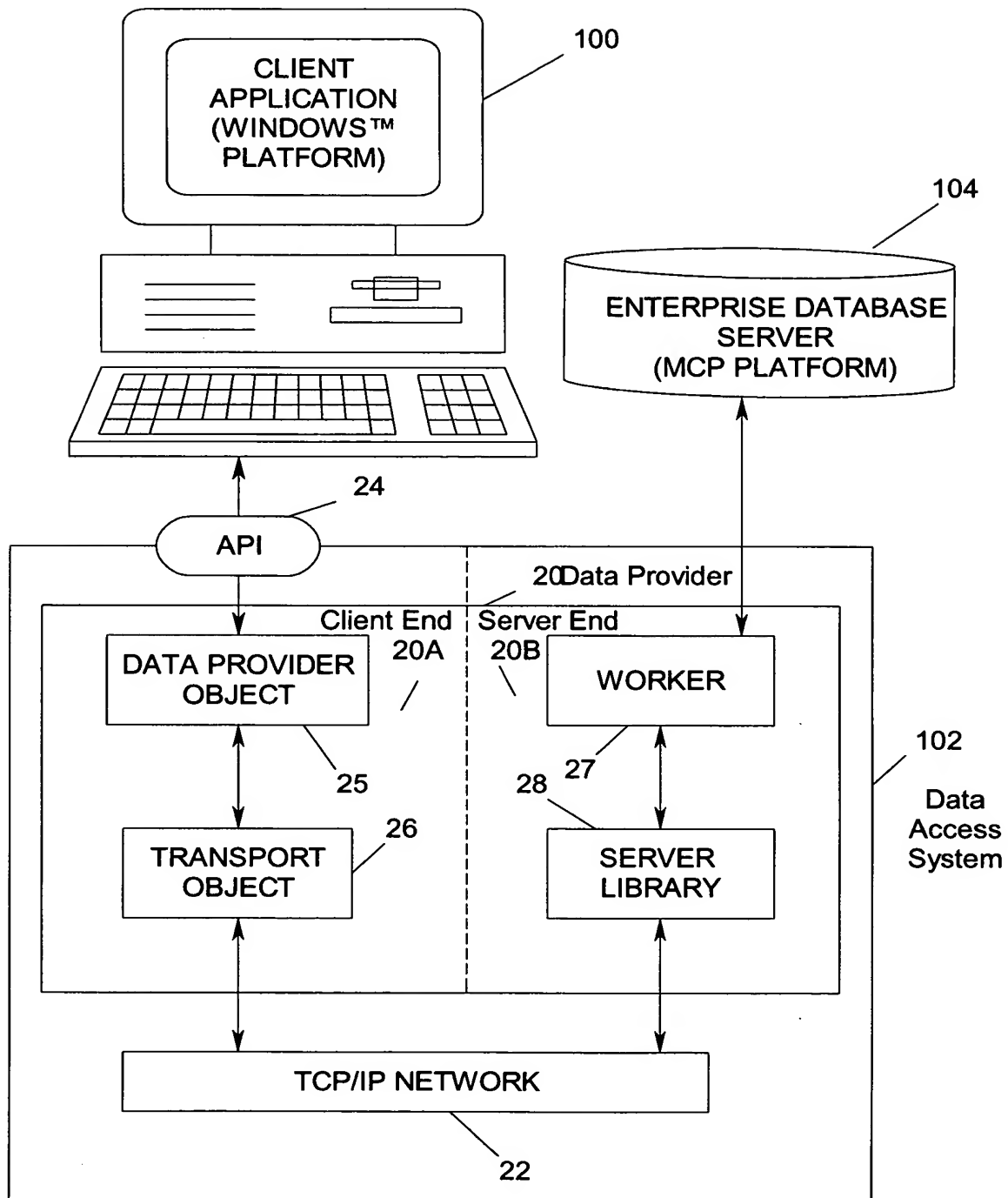
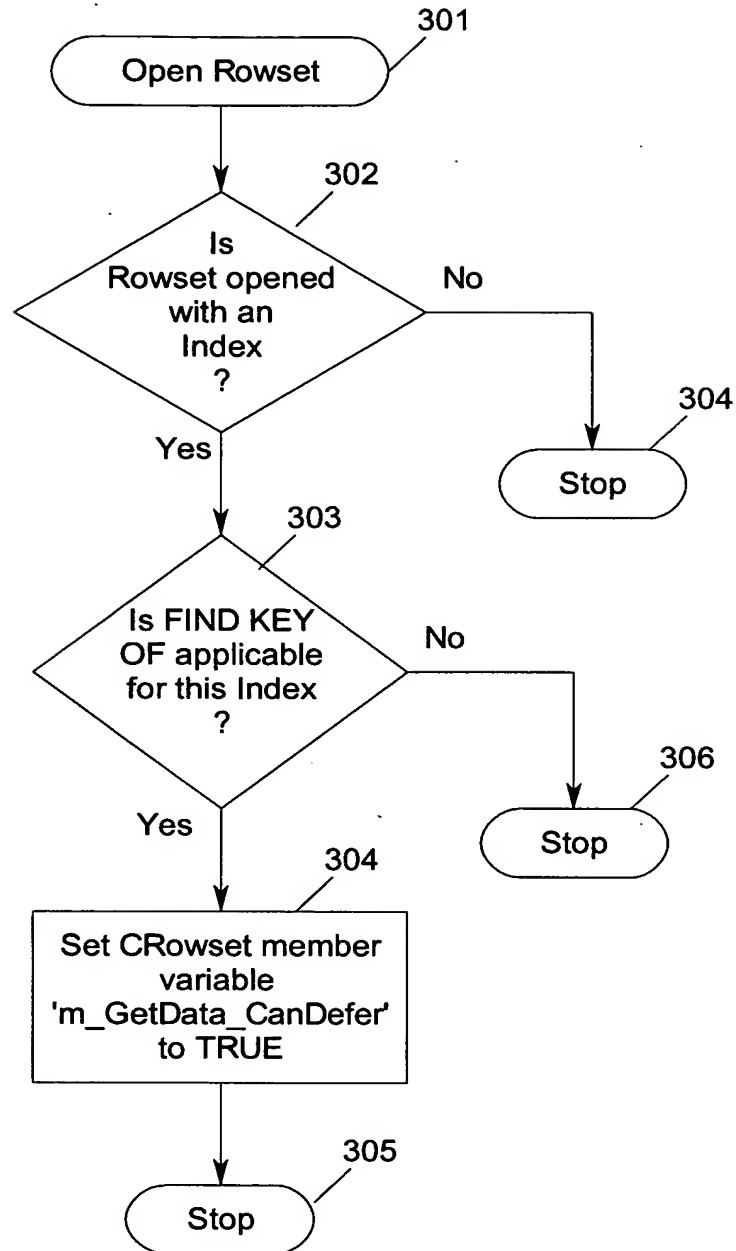


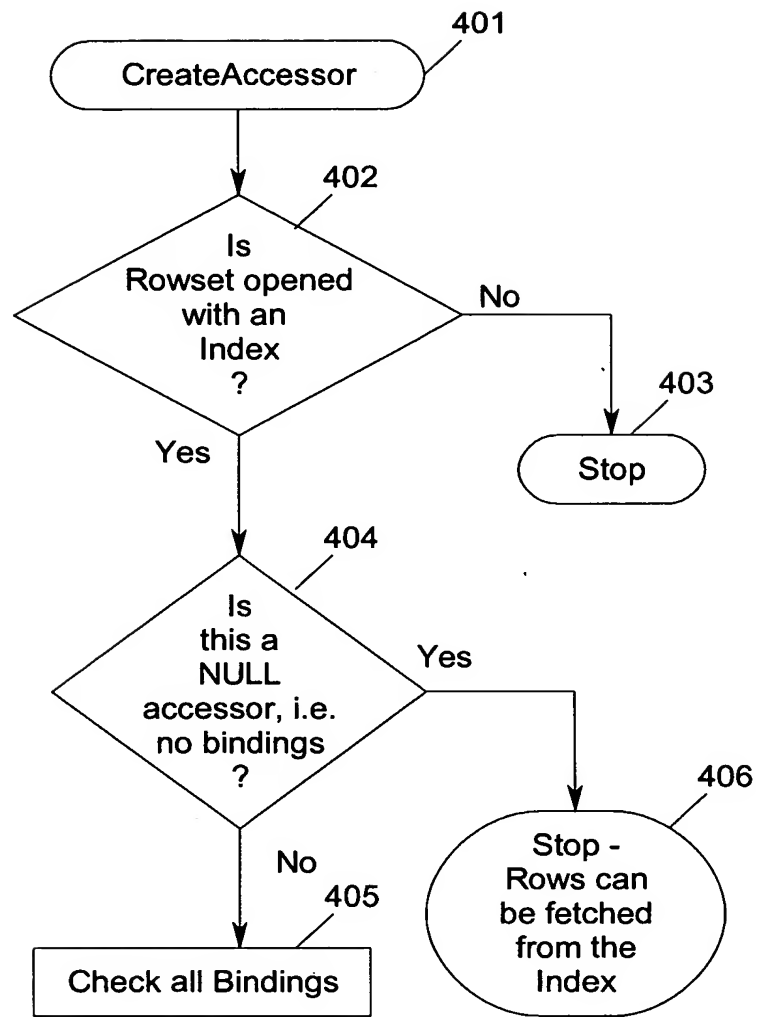
**FIG. 1**



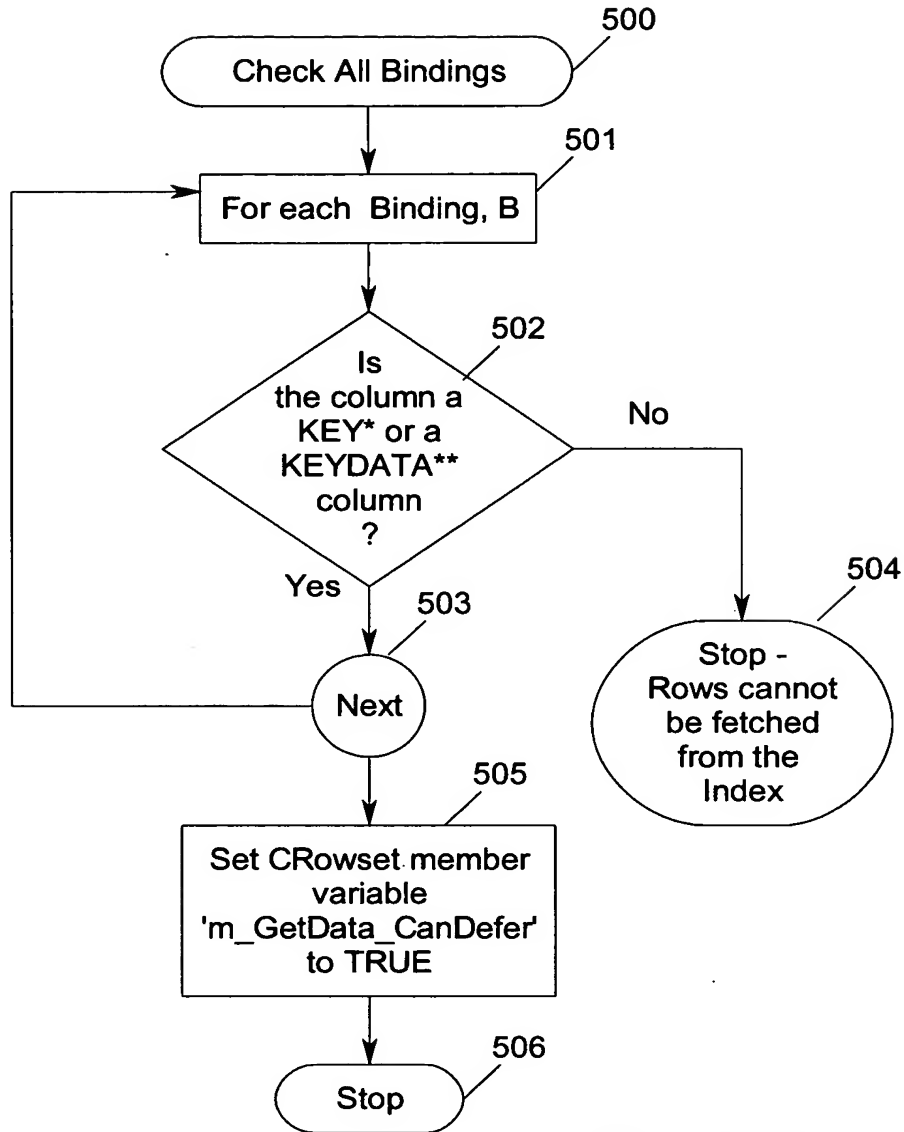
*Fig. 2*



*Fig. 3*

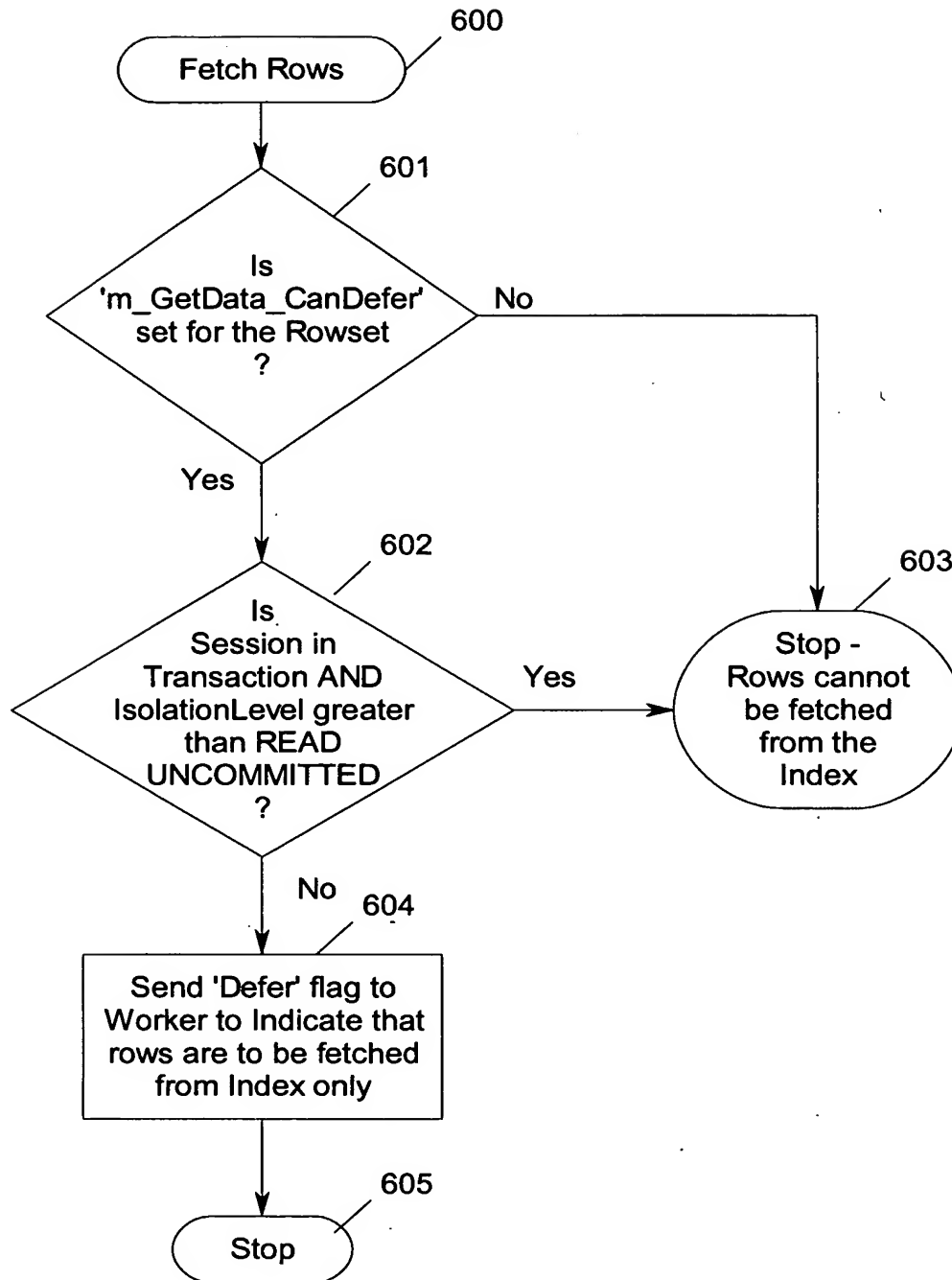


*Fig. 4*

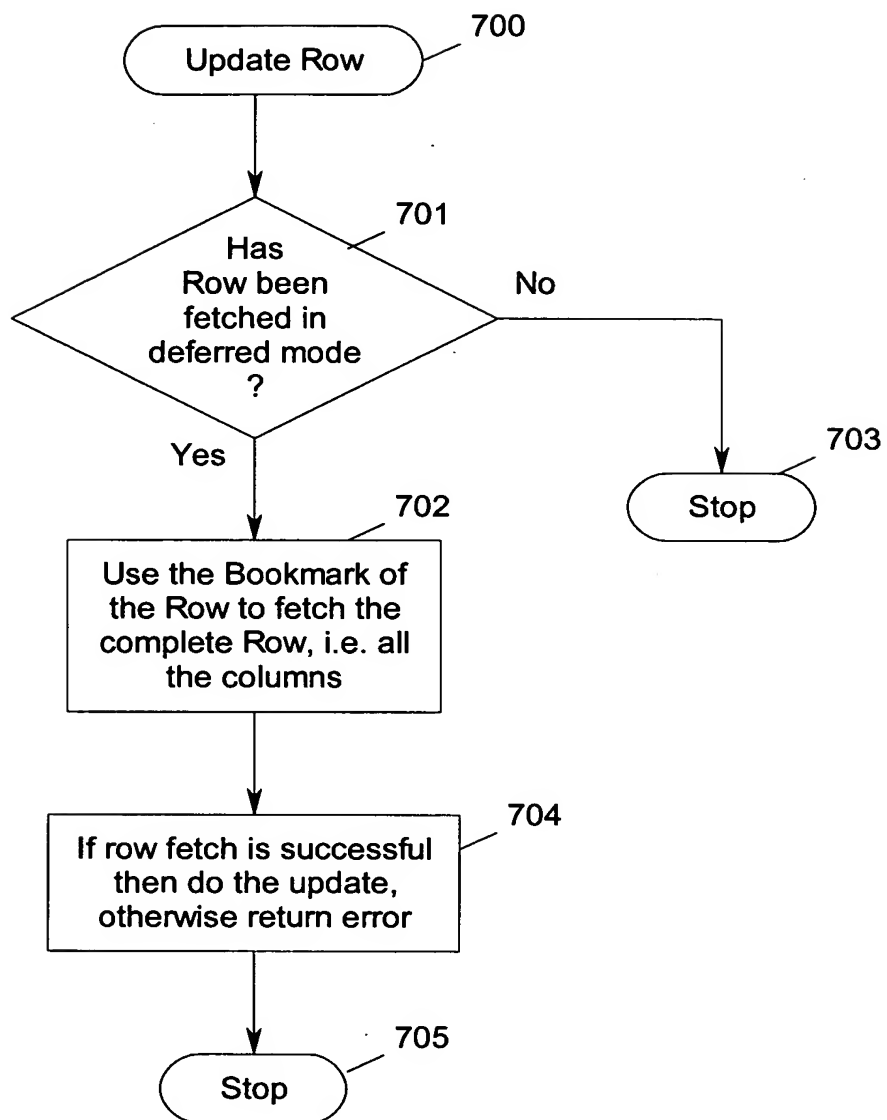


\*KEY - a column that is used for collating an Index  
\*\*KEYDATA - a column that is present in an index structure to provide fast access but is not used for collation

*Fig. 5*



*Fig. 6*



*Fig. 7*

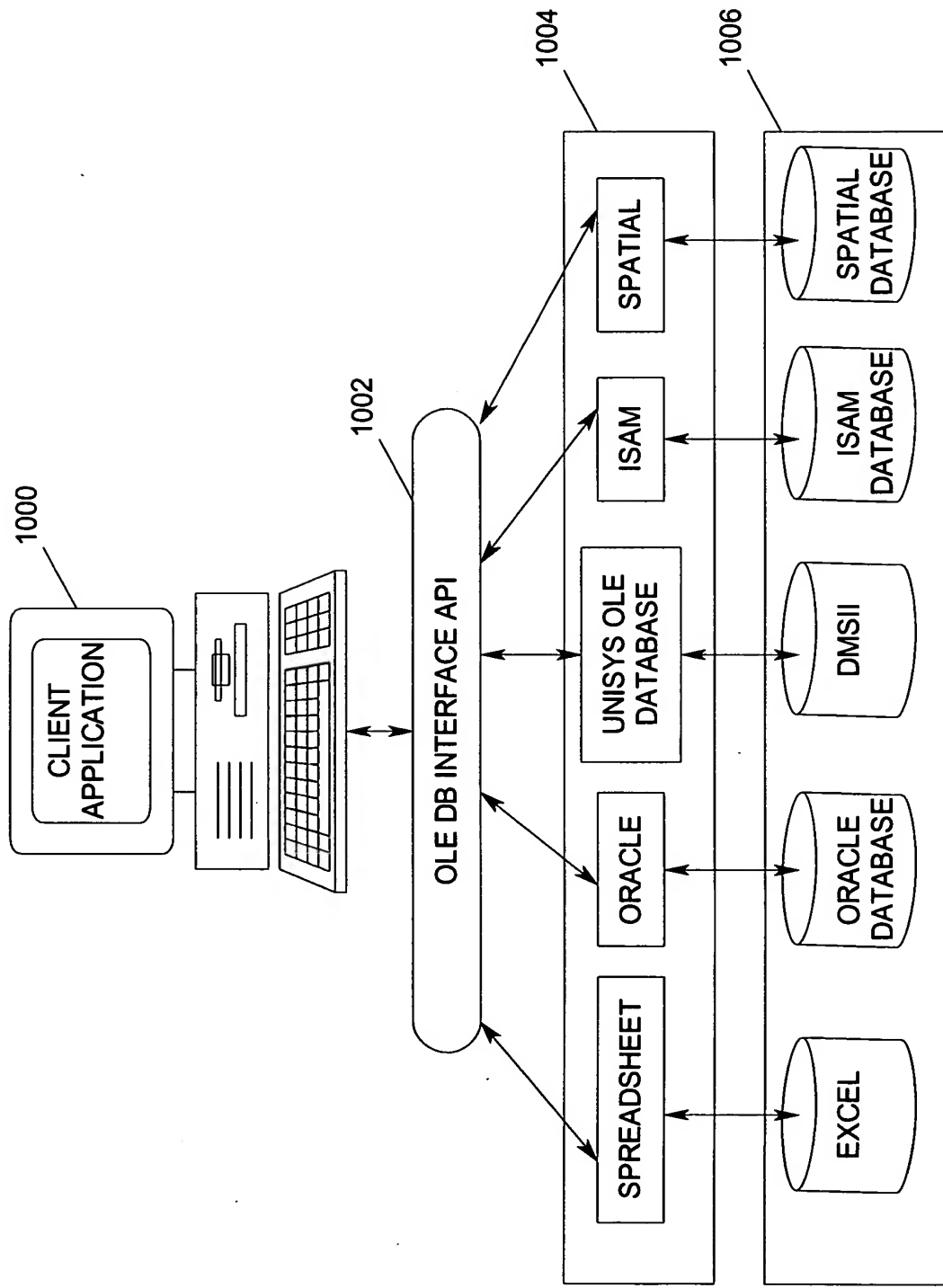


Fig. 8



NORTHWINDOLAP - Schema Utility					
File View Tools Help					
<div> <div>▲</div> <div> northwindolap  acc_empterritorys  cat_catid_idx  cat_catname_idx  categories  cust_company_idx  cust_custid_idx  customers  emp_empid_idx  emp_lastname_idx  emp_psticode_idx  ord_cusorder_idx  ord_employid_idx  ord_orderdate_idx  ord_orderid_idx  orddt_ordetl_idx  orddt_orderid_idx  orderdetails  orders  prod_category_idx  prod_prodname_idx  prod_product_idx  prod_supplid_idx  products </div> <div>▼</div> </div>		Database Name	Base CCS	Base Year	Century Start
		northwindolap	EBCDIC	1957	1930
		Structure Name	Structure Type	Record Length	
		categories	Compact Data Set	792	
		customers	Data Set	270	
		employees	Data Set	1050	
		empterritories	Ordered Data Set	30	
		northwindclap	Global Data Set	12	
		orderdetails	Data Set	42	
		orders	Data Set	252	
		products	Data Set	114	
		region	Direct Data Set	60	
		shippers	Unordered Data Set	72	
		suppliers	Data Set	528	
		territories	Random Data Set	78	

Fig. 9A

NORTHWINDOLAP - Schema Utility				
File View Tools Help				
<div> <div>▲</div> <div> <div>empterritories</div> <div>northwindolap</div> <div>ord_cusorder_idx</div> <div>ord_employid_idx</div> <div>ord_orderdate_idx</div> <div>ord_orderid_idx</div> <div>crddt_crddetl_idx</div> <div>crddt_orderid_idx</div> <div>prod_category_idx</div> <div>prod_prodnam_idx</div> <div>prod_product_idx</div> <div>prod_supplid_idx</div> <div>products</div> <div>productid</div> <div>productname</div> <div>supplierid</div> <div>categoryid</div> <div>quantityperunit</div> <div>unitinfo</div> <div>unitprice</div> <div>unitinstock</div> <div>unitsonorder</div> <div>reorderlevel</div> <div>discontinued</div> </div> <div>▼</div> </div>	Structure Name	Structure Type	Record Length	
	products	Data Set	114	
	Item Name	Item Definition	Interpretation	OLE DB Type
	<div> <div>productid</div> <div>productname</div> <div>supplierid</div> <div>categoryid</div> <div>quantityperunit</div> <div>unitinfo</div> <div>unitprice</div> <div>unitinstock</div> <div>unitsonorder</div> <div>reorderlevel</div> <div>discontinued</div> </div>	<div> <div>REAL(59)</div> <div>ALPHA(40)</div> <div>REAL(59)</div> <div>REAL(59)</div> <div>ALPHA(20)</div> <div>GROUP</div> <div>NUMBER(519,4)</div> <div>REAL(59)</div> <div>REAL (59)</div> <div>REAL(59)</div> <div>REAL(59)</div> </div>	<div> <div>REAL(59)</div> <div>ALPHA(40)</div> <div>REAL(59)</div> <div>REAL(59)</div> <div>ALPHA(20)</div> <div>HIDDEN</div> <div>NUMBER(519,4)</div> <div>REAL(59)</div> <div>REAL(59)</div> <div>REAL(59)</div> <div>REAL(59)</div> </div>	<div> <div>DBTYPE_NUMERIC</div> <div>DBTYPE_STR</div> <div>DBTYPE_NUMERIC</div> <div>DBTYPE_NUMERIC</div> <div>DBTYPE_STR</div> <div>DBTYPE_NUMERIC</div> <div>DBTYPE_NUMERIC</div> <div>DBTYPE_NUMERIC</div> <div>DBTYPE_NUMERIC</div> <div>DBTYPE_NUMERIC</div> </div>

Fig. 9B

NORTHWINDOLAP - Schema Utility				
File View Tools Help				
<div>▲</div> <div> emp_psticode_idx  employees  empterritories  northwindolap  ord_cusorder_idx  ord_employid_idx  ord_orderdate_idx  ord_orderid_idx  orddt_orddtel_idx  orddt_orderid_idx  orderdetails  orders  prod_category_idx  prod_prodnname_idx  prod_product_idx  productid  unitprice  unitsinstock  unitsonorder  prod_supplid_idx  products  region  region_acc  ship_shipper_idx  shippers </div> <div>▼</div>	Structure Name		Structure Type	Spanned Structure
	prod_product_idx		Index Sequential	products
	Item Name	Item Definition	Interpretation	OLE DB Type
	productid unitprice unitsinstock unitsonorder	REAL(59) NUMBER(519,4) REAL(59) REAL(59)	REAL(59) NUMBER(519,4) REAL(59) REAL(59)	DBTYPE_NUMERIC DBTYPE_NUMERIC DBTYPE_NUMERIC DBTYPE_NUMERIC

Fig. 9C

